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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,745	11/26/2003	Harry Hedler	543822002000	3946

25227 7590 08/05/2005

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EXAMINER	
HUYNH, YENNHU B	

ART UNIT	PAPER NUMBER
2813	

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

11-A

Office Action Summary	Application No.	Applicant(s)	
	10/721,745	HEDLER ET AL.	
	Examiner	Art Unit	
	Yennhu B. Huynh	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-9,12,15,16,18 and 19* is/are rejected.

7)☒ Claim(s) *4,10,11,13,14 and 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/26/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Information Disclosure Statement

The information disclosure statement filed on 11/26/03 is being considered by the examiner.

Oath/Declaration

Oath/Declaration filed on 11/26/03 is accepted.

Claim Objections

Claim 8 is objected to because of the following informalities:

in claim 8 , line 2 the limitation --claim 8-- should be changed to --claim 1--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3,5-9,12,15,16,18 & 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plepys et al. (US. 6140707) in view of Ohuchi et al. (US 6,573,598B2).

Phepys et al. disclose:

-Re. claims 1,12 & 19:

-Providing a carrier device 50 with predefined or subsequently patterned cut out (fig. 2).

-Applying at least one integrated circuit 62 upside down to the carrier device such that the cutouts of the carrier device are located above at least one connection device 64 of the integrated circuit.

-Applying an insulation device 60 to a side of the carrier device, which is not covered by the integrated circuit 62, omitting the at least one connection device 64

However, Phepys et al. do not disclose applying a pattern rewiring to the insulation; applying a patterned solder resist device to the patterned rewiring; and applying, in a manner, solder balls on section of the rewiring which are not covered by the patterned solder resist device.

Ohuchi et al. disclose a method of rewiring be connected to a semiconductor device, which include a pattern rewiring 103 to the polyimide insulation layer on the surface of the semiconductor substrate (not showing col.3 lines 12-14); applying a patterned resin (polymer) solder resist 105 to the patterned rewiring; and applying, in a manner, solder balls 107 on section of the rewiring device which are not covered by the patterned solder resist device.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Ohuchi et al.'s patterned rewiring device connection to the electrode solder balls in patterned manner, into the structure of Plepys et al., to obtain a widespread or fan out wiring type and reliability for interconnection of a chip small size package that having a separated individual chips, which can also reduces costs production process for the substrate.

-Re. claim 2: Pleyes et al. also disclose wherein the carrier device 50 is a film in which at least one of the cutouts is present in the form of a stamped-out hole (fig. 2)

-Re. claim 3: Pleyes et al. also disclose wherein an adhesive layer 60 is included in the carrier 50 before application of the integrated circuit 62 (fig. 2 col. 6 lines 1-7).

-Re. claims 5,7 & 9: Pleyes et al. also disclose wherein a multiplicity of integrated circuit 62 are applied to the carrier device by a placement device, which is a press or printing process and following heating treatment (col.7 lines 27-35).

-Re. claim 6: Pleyes et al. also disclose wherein a protection device 58 is applied in a printing or press process (col.7 lines 27-30)

-Re. claim 8: Pleyes et al. also disclose wherein the insulation device 60 is a polyimide polymer (col.10 lines 1-2).

-Re. claims 15 & 18: Plepys et al. also disclose wherein a multiplicity of integrated circuit 62 on a carrier device 50 after the application of the solder balls 30, or wherein multichip modules are formed, which have different individual integrated circuits (fig.6).

Plepys et al. also do not disclose wherein a multiplicity of integrated circuit with rewiring devices undergoes a functional test prior to the separation (cl.16).

-Re. claim 16: Ohuchi et al. also disclose wherein a multiplicity of integrated circuit with rewiring devices undergoes a thermal expansivity cycle test to the prior separation (col. 1 lines 35-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Ohuchi et al.'s a function test before to the separation of pieces for individual semiconductor chip; into Plepys et al. structure, to reduce stress in bonding between the solder balls and integrated circuit.

Allowable Subject Matter

Claims 4, 10, 11, 13, 14 & 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: Prior art do not disclose the steps of:

- Wherein the carrier is clamped in device (cl. 4).

-Applying and patterning of a mask on the carrier metallization; then applying a conductor track metallization in regions of the carrier metallization which are not covered by the patterned mask, then removing the mask, and patterning of the carrier metallization in accordance with the conductor track metallization structure, in combination with the other limitations (cl.10).

-Herein the carrier metallization is sputtered on and /or the mask is patterned photo-lithographically and/or the conductor track metallization is electrochemically plated and/or the carrier metallization is patterned etching (cl. 11).

-Wherein the solder resist device is printed on (cl.13).

-Wherein the solder balls are applied in patterned fashion in a printing process and are subsequently reliquaries, preferably in a reflow furnace (cl. 14).

-Wherein the patterned rewiring device is patterned such that is extends laterally beyond the integrated circuit (cl.17).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yennhu B. Huynh whose telephone number is 571-272-1692. The examiner can normally be reached on M-F 8.30AM-7.00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr., can be reached 571-272-1702. The fax phone numbers for the organization where this application or proceeding is assigned are 703-

308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

YNBH,

080105

MICHAEL LEBENTRITT
SUPERVISORY PATENT EXAMINER